

REMARKS

Applicants request entry of the present amendments that conform the claims to U.S. practice. No new matter is being introduced by this Amendment as antecedent support is set forth in the original specification and in the original claims. Attached hereto is a marked-up version of the changes made. The attached page is captioned **"Version with Markings to Show Changes Made."**

Prosecution on the merits is respectfully requested.


The Examiner is invited to contact Applicant's Attorneys at the below-listed telephone number regarding this Preliminary Amendment or otherwise regarding the present application.

If there are any charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

JORG MULLER-ZILLER, ET AL.

CANTOR COLBURN LLP
Applicants' Attorneys

By: 
Lisa A. Bongiovi
Registration No. 48,933
Customer No. 23413

Date: January 25, 2002
Address: 55 Griffin Road South, Bloomfield, CT 06002
Telephone: 860-286-2929

MARKED UP VERSION TO SHOW CHANGES MADE

IN THE CLAIMS:

A marked-up version of the Claims is as follows:

1. (Marked up/Amended) An arrangement for transporting metallic work pieces-(20), especially during a heat treatment process, comprising:

a heat-insulated transport chamber (+0)-to hold the work pieces-(20);

means (40)-for loading and unloading the work pieces-(20); and

a transporting gear (30)-for moving the transport chamber-(10),

~~characterized in that~~ wherein the transport chamber (+0) can be moved horizontally, is designed to be vacuum-tight, and can be evacuated of air to create a vacuum to protect the work pieces (20)-from environmental influences; and

~~it also~~ wherein the transport chamber contains a horizontal batch loading and unloading device.

2. (Marked up/Amended) The arrangement in accordance with claim 1, ~~characterized by~~ further comprising a vacuum pump for evacuating the air from the transport chamber-(10).

3. (Marked up/Amended) The arrangement in accordance with claim 1 or 2, ~~characterized in that~~ wherein the transport chamber (10) (may be heated.)

4. (Marked up/Amended) The arrangement in accordance with ~~one of~~ claims 1 through 3, ~~characterized in that~~ wherein the transport chamber (+0) is equipped with a removable thermal insulation-(12), ~~preferably~~ made of steel.

5. (Marked up/Amended) The arrangement in accordance with ~~one of~~ claims 1 through 4, ~~characterized in that~~ wherein the transport chamber (+0) is equipped with a hermetically sealable loading door-(15), which may be actuated via a drive mechanism-(16).

6. (Marked up/Amended) The arrangement in accordance with claim 5, ~~characterized in that~~wherein the transport chamber (10) is equipped with a hermetically sealable connecting door.

7. (Marked up/Amended) The arrangement in accordance with ~~one of~~ claims 1 through 6, ~~characterized in that~~wherein the transport chamber (10) and the transporting gear (30) can be moved relative to one another.

8. (Marked up/Amended) The arrangement in accordance with claim 7, ~~characterized in that~~wherein the transport chamber (10) is positioned on the transporting gear (30) such that it can pivot horizontally or can move in a straight line in a horizontal and/or vertical direction.

9. (Marked up/Amended) The arrangement in accordance with ~~one of~~ claims 1 through 8, ~~characterized in that~~wherein the transporting gear (30) can rotate in place.

10. (Marked up/Amended) The arrangement in accordance with ~~one of~~ claims 1 through 9, ~~characterized in that~~wherein the transporting gear (30) is rail-mounted, or can be controlled freely via induction loops embedded in the base.

11. (Marked up/Amended) A system for heat treating metallic work pieces (20) comprising:

at least two treatment chambers (50) for the horizontal acceptance of batches, in which the work pieces (20) can be heat treated; and

an arrangement for transporting metallic work pieces ~~characterized in that~~
~~an arrangement in accordance with one of claims 1 through 10~~ can be coupled to the treatment chamber (50) via a transfer canal (60) that can be evacuated of air.

12. (Marked up/Amended) The system in accordance with claim 11, ~~characterized in that~~wherein the transfer canal (60) is connected to the treatment chamber (50) in a stationary position.

13. (Marked up/Amended) The system in accordance with claim 11 ~~or 12~~, characterized in that wherein the transfer canal (60) can be evacuated separately.

14. (Marked up/Amended) The system in accordance with ~~one of the~~ claims 11 through 13, characterized in that wherein the transfer canal (60) is equipped with a drive mechanism, via which ~~the~~ a loading door (15) of the transport chamber (10) may be actuated.

15. (Marked up/Amended) The system in accordance with ~~one of the~~ claims 11 through 14, characterized in that wherein the treatment chamber (50) is a vacuum furnace, an atmospheric furnace, or a cooling chamber.

16. (Marked up/Amended) A method of transporting metallic work pieces (20) during a heat treatment process, in which the work pieces (20) are transported within a heat-insulated, horizontally movable transport chamber (10), between at least two horizontally loaded treatment chambers (50), in which the work pieces (20) may be heat treated, ~~characterized in that~~ the method comprising:

evacuating the transport chamber (10), which is designed to be vacuum-tight, ~~is evacuated of air;~~

creating a vacuum that will protect the work pieces (20) from environmental influences; ~~and in that~~

transporting the work pieces (20) ~~are transported within this the~~ vacuum from one treatment chamber (50) to the next; ~~and in this are held~~

holding the work pieces at the treatment temperature, without any significant drop in temperature.

17. (Marked up/Amended) The method in accordance with claim 16, ~~characterized in that~~ further comprising coupling the transport chamber (10) ~~is coupled~~ via a transfer canal (60) to the appropriate treatment chamber (50).

18. (Marked up/Amended) The method in accordance with claim 17, characterized in that further comprising evacuating the transfer canal (60) ~~is evacuated~~ separately.

IN THE ABSTRACT:

A “marked up” version of the Abstract is as follows:

An arrangement for transporting metallic work pieces (20) ~~comprises~~ includes a heat-insulated transport chamber (10), means (40) for loading and unloading the work pieces (20), and transporting gear (30). To enable the flexible and efficient transport of the work pieces among a number of treatment chambers in an arrangement of this type during a heat treatment process, the transport chamber (10) is designed to be vacuum-tight, such that it can be evacuated of air to create a vacuum that will protect the work pieces (20) from environmental influences.

In addition, a system for heat treating metallic work pieces (20), comprising at least two treatment chambers (50) in which the work pieces (20) can be heat treated, is characterized in that an arrangement of this type can be coupled to the treatment chamber (50) via a transfer canal (60) that can be evacuated.

Furthermore, in a method for transporting metallic work pieces (20) during a heat treatment process, a vacuum-tight transport chamber (10) is evacuated to create a vacuum that will protect the work pieces (20) from environmental influences, for the purpose of transporting the work pieces (20) within this vacuum from one treatment chamber (50) to the next.